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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/816,060	04/01/2004	Timothy Brooks Bambridge	3-4-3-2-1	9638

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Ryan, Mason & Lewis, LLP
90 Forest Avenue
Locust Valley, NY 11560

EXAMINER

HUYNH, ANDY

ART UNIT PAPER NUMBER

2818

DATE MAILED: 07/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/816,060

Applicant(s)

BAMBRIDGE ET AL.

Examiner

Andy Huynh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 June 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 04/01/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

In the Response to Restriction Requirement dated 07/13/2005, Applicant has elected with traverse the Invention of Group I (Claims 1-12) drawn to a device, and canceled without prejudice Claims 13-22. Accordingly, Claims 1-12 are currently pending in this application.

Information Disclosure Statement

This office acknowledges receipt of the following items from the applicant: Information Disclosure Statement (IDS) filed on 04/01/2004. The references cited on the PTOL 1449 form have been considered.

Claim Objections

Claim 1 is objected to because of the following reasons.

In line 4, “a heat spreader” should read –the heat spreader--, and line 7, “... in an integrated circuit device” should read –... in the integrated circuit device--.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims **1-5 and 10-12** are rejected under 35 U.S.C. 103(a) as being unpatentable over Fox et al. (USP 4,954,878 hereinafter referred to as "Fox") in view of Carney et al. (USP 5,319,242 hereinafter referred to as "Carney").

Regarding claims **1, 10 and 12**, Fox discloses in Fig. 1 and the corresponding texts as set forth in column 2, line 45-column 3, line 21, an integrated circuit device/a chip assembly 10 comprises:

- a heat spreader/a thermal transfer member 28 comprising a top surface and a bottom surface;

- at least one integrated circuit die/chip 16 attached to the top surface of the heat spreader/the thermal transfer member; and

- a flexible leadframe 18 attached to the top surface of the heat spreader and comprising one or more flexible layers, and a plurality of electrically conductive traces defined on the at least one flexible layer, wherein the one or more flexible layers are configured for use as a flexible leadframe in the integrated circuit device/the chip assembly.

Fox fails to teach a flexible leadframe comprises one or more flexible layers including at least one flexible insulating layer, wherein the one or more flexible layers comprises at least one polyimide layer. Carney teaches that in Fig. 1 a flexible leadframe/a TAB lead tape 22 comprises a flexible insulating material made of polyimide 24 (col. 2, lines 42-43). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to form a flexible leadframe/a TAB lead tape comprises a flexible insulating material made of

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polyimide, as taught by Carney to incorporate into Fox's device to arrive the claimed limitation since it was known in the art that TAB bonding is well known in the semiconductor arts.

Regarding claims **2 and 11**, Fox and Carney disclose the claimed limitations except for two or more flexible layers are stacked/laminated together. It would have been obvious to one having ordinary skill in the art at the time of the invention was made to form two or more flexible layers stacked together, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

Regarding claim **3**, Fox discloses in Fig. 1 the flexible leadframe and the top surface of the heat spreader/the thermal transfer member define an interior area configured for receiving the at least one integrated circuit die/chip, and wherein the integrated circuit die/chip is electrically connected to the flexible leadframe.

Regarding claim **4**, Fox discloses in Fig. 1 the integrated circuit device/the chip assembly further comprises a lid/substrate 12 attached to the flexible leadframe, wherein the lid/substrate encloses an interior area configured for receiving the at least one integrated circuit die/chip.

Regarding claim **5**, Fox and Carney disclose the claimed limitations except for the lid comprises at least one of metal, plastic, polyimide, plastic with metal coating, and ceramic. It would have been obvious to one having ordinary skill in the art at the time of the invention was made to form the lid comprises at least one of metal, plastic, polyimide, plastic with metal coating, and ceramic, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

Claims 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fox et al. (USP 4,954,878 hereinafter referred to as "Fox") in view of Carney et al. (USP 5,319,242 hereinafter referred to as "Carney") further in view of Background of the Invention.

Fox and Carney disclose the claimed limitations except for the flexible leadframe comprises at least one embedded circuit component, wherein the at least one embedded circuit component comprises one or more signal filters, or/and tuning capacitors, or/and inductors. Background of the Invention teaches that conventional cavity packages may include signal filters, or tuning capacitors, and inductors to be mounted inside the cavity of the package or on the PWB outside the package as set forth at page 2, lines 11-13. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to form the flexible leadframe including at least one embedded circuit component, wherein the at least one embedded circuit component comprises one or more signal filters, or/and tuning capacitors, or/and inductors since it was known in the art that the at least one embedded circuit component comprises one or more signal filters, or/and tuning capacitors, or/and inductors may be formed depending on the desired applications.

Conclusion

A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to become abandoned (see M.P.E.P 710.02(b)).

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andy Huynh, (571) 272-1781. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571) 272-1787. The Fax number for the organization where this application or proceeding is assigned is (571) 273-8300.

Any inquiry of a general nature or relating to the -status of this application or proceeding should be directed to the receptionist whose phone number is (703) 308-0956.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ah

07/23/05



Andy Huynh

Patent Examiner